

Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 5

April, 1903

No. 52

ROSES VS. RAILROADS.

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WHILE it is not often that botanists and horticulturists have occasion to testify in court, at least in a technical way, it is satisfactory to know that recently when such testimony was given it resulted in a most decided victory for the growers of flowers and helped establish a principle which cannot but have considerable influence upon any future case involving the question of damage to plants by smoke and poisonous vapors. The facts which resulted in the bringing of such a suit were as follows:

The New York, New Haven and Hartford Railroad Company, while making some general improvements in the vicinity of their station at Woods Hole, Massachusetts, decided upon the removal of an old engine house, which had outlived its usefulness. After this building had been torn down and most of the material disposed of, there still remained an old tar and gravel roof, which could be neither used nor given away and since it would probably have cost a few hundred dollars to transport this material to the ocean and sink it, it was decided to set fire to the mass and thus consume it without expense. Unfortunately for this bit of economy, there was in the immediate neighborhood one of the finest rose gardens in this country, formerly the property of Mr. J. S. Fay and now owned jointly by Miss Fay and Mr. M. H. Walsh.

To those who are familiar with the various exhibitions of roses which have taken place in Massachusetts and elsewhere within the last few years, the mere mention of such names as the Jubilee, the Lillian Nordica, the J. S. Fay, the Débutante, the Sweetheart and similar famous plants, all the result of Mr. Walsh's skill, will be quite

sufficient to establish his reputation as a grower and breeder of roses. The fact that he received the first gold medal ever awarded for a rose, together with his long list of first prizes and constant success as a gardener, is well known and that he was the part owner of a collection of roses and other plants that could not be duplicated, except under exceptional circumstances, will be readily admitted.

At the time of the destruction of the engine house, about the middle of May, 1901, Mr. Walsh had a large number of stock plants on hand, besides a climbing Rambler, a hybrid tea and several other new garden roses, which gave great promise, and were conceded by all who had seen them to be of unusual beauty and superior worth.

When the burning of the rubbish from the engine house began, it was the source of considerable annoyance to those living in the vicinity, but it was not until the third and last day of the fire, when the tar roof was being consumed, that anything seemed decidedly wrong in the rose garden. At this time, the leaves began to fall from a number of plants, while those which remained, together with parts of the stems, became discolored and marked in various ways. So severe was this external evidence of damage, that for months afterwards the bushes which were able to survive showed large black and gray scars, much as though they had been actually scorched by fire.

One can readily imagine the alarm with which the owners of this wonderful garden viewed the destruction of their plants and the immediate efforts made to discover the cause of such havoc. For this it did not seem necessary to seek far. The amount of dense smoke and vapor that arose from the burning of the tar roofing was, of course, tremendous and when this cloud was carried by the prevailing wind directly upon the rose garden, settling there like some heavy black fog, it could hardly be supposed to be beneficial.

As has been said, the immediate effect of this unusual environment was to cause most of the leaves to drop off and to scar and mark the young and tender stems so as practically to ruin them for exhibition or other such purposes. But this proved to be the smallest part of the loss. As in any other case of poisoning from gases, the outward evidences were but slight as compared with the internal and actual damage done to the plants. Some were killed outright, while many of those which survived were so weakened that they were of no further use for propagation. Large areas of growing tissue died in most of the shoots exposed to the action of the smoke and this together with

the loss of foliage made it impossible for a number of plants to recover even under the most careful nursing. The bushes which survived were much more susceptible to the attack of fungus diseases and it is a question whether even those plants which seemed to be but slightly affected will ever be able to attain the perfection which they promised before being subjected to the fumes of the burning tar.

When complaint was made to the Railroad Company, they failed to appreciate that the roses had been damaged and declined to recognize their liability in the matter. Consequently, a suit for \$9,000 was brought, which was subsequently increased to \$25,000, Robert M. Morse and Henry M. Hutchings appearing for the plaintiffs and Thomas C. Day for the defendant.

It was soon recognized by the attorneys for the plaintiffs that however great the actual damage might be and whatever estimate competent horticulturists might place upon the value of the destroyed plants, the first and most necessary point was to establish the injurious effect of the smoke and vapor from burning tar upon rose plants and to demonstrate further that this effect was distinct from any produced by changes in the weather, the use of germicides, attacks of fungi, insects, or any other cause which might be put forward by the defendant. The damage which may be produced in plants by the action of sulphurous and carbolic acids, pyradins and other substances apt to be found in tar, is well known. Gardeners know to their cost the result of burning sulphur instead of merely vaporizing it, when attempting to fumigate greenhouses and the effect of a crystal of carbolic acid on a rose leaf is a simple yet convincing demonstration of the rapidity with which the plant is affected. It has been shown by careful experiments that one part of sulphurous acid in one million parts of air is sufficient to cause the death of an average rose-bush in a few hours and the action of the various hydrocarbons is but little less severe. An analysis of pieces of the tar roofing was made by Dr. A. H. Gill of the Institute of Technology and showed the presence of sulphur, phenols and other substances which, if burned, would generate poisonous vapors in sufficient quantity to damage or destroy any plant with which they remained in contact. A microscopical examination of the discolored leaves and stems from Mr. Walsh's roses showed very clearly that the killing action had been due to a poisonous gas rather than to the presence of a fungus or other foreign organism. The contents of the cells were shrunken

and distorted, the green coloring matter being completely disorganized and filled with small brown granules of "acid chlorophyl" which gave rise to the characteristic yellow and brown splotches upon the leaves and stems.

After it had been established by expert testimony that the effect of such vapors as would be generated by the burning of tar was identical with that produced in the plants of Miss Fay and Mr. Walsh, an attempt was made to fix as nearly as possible the actual money loss involved. Such well known authorities as Mr. B. M. Watson, Mr. John K. Farquhar, Mr. Robert Cameron, Mr. Wm. H. Elliott and others equally as competent testified as to the preëminent reputation of Mr. Walsh as a rose grower and the specific worth of the individual plants he had lost. Although there was the natural variation in the estimates that would be expected, where so many opinions were given independently, the average of all the estimates on the value of the roses damaged by poisonous gases amounted to \$5,543.47 on the plants of Miss Fay and \$15,596 on those belonging to Mr. Walsh. In addition to this sum it was maintained that Mr. Walsh was entitled to special damages for the loss of prizes which he would undoubtedly have received and for the loss of advertising due to his inability to exhibit and keep his flowers before the public as usual. These claims were allowed by the Auditor, who awarded \$21,989.32 as the total amount of damages sustained. The Railroad Company subsequently paid \$20,000 in settlement, without taking an appeal.

While somewhat similar cases involving the question of damage to vegetation due to certain noxious vapors have been tried in this country, no one has ever received anything like such a sum as was paid in this instance. As Mr. Morse, in his closing argument, said, "I need not say to the Auditor that this case is one of great importance. It is important in a certain sense to the profession, not only to the profession of law, but to the profession of florists, because no action involving so serious a damage to plants or flowers has ever arisen in this country, and, while there may not be much law to be settled by it, it still will always be of interest." Considering the dignified and unprejudiced manner in which the entire hearing was conducted and the fair and careful way in which the amount of damage was estimated, it certainly established a very strong precedent in favor of those who have large interests in the growing of flowers for either pleasure or profit.

WASHINGTON, D. C.